

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- V EXAMINATION-SUMMER 2023****Subject Code: 2150908****Date: 22/06/2023****Subject Name: Electrical Power System – I****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain Feeder, Distributor and Service Mains.	03
	(b) Draw single line diagram of typical power system and explain the same.	04
	(c) Discuss advantages and disadvantages of AC transmission over DC transmission.	07
Q.2	(a) What is Skin effect and proximity effect?	03
	(b) What are the factors that affect the sag in the transmission line?	04
	(c) What is string efficiency? Derive its equation in case of 3-disc string. Explain methods of improving string efficiency.	07
	OR	
	(c) Derive the equation of sag in case of When supports are at equal level.	07
Q.3	(a) Explain self GMD and mutual GMD.	03
	(b) What do you mean by transposition of line? What is it 's effect on the performance of the line	04
	(c) Derive the equation of Inductance of a single phase two wire system.	07
	OR	
Q.3	(a) What is the effect of earth on Transmission line capacitance?	03
	(b) Write a note on bundled conductors	04
	(c) Derive formula for capacitance of a single phase two wire line.	07
Q.4	(a) What are the advantages of per unit system?	03
	(b) Discuss any one method of DC distributor calculations.	04
	(c) Explain with neat sketch the construction of cables.	07
	OR	
Q.4	(a) What are the various schemes of distribution?	03
	(b) Discuss ring distributor.	04
	(c) Compare AC and DC distribution systems.	07
Q.5	(a) Classify cables.	03
	(b) Write a note on types of insulators.	04

- (c) Compare overhead and underground system of transmission and distribution. **07**

OR

- Q.5** (a) What are the advantages of high transmission voltage? **03**
(b) Discuss different line supports. **04**
(c) What do you understand by grading of underground cables? List the methods of grading and explain any one of them in detail. **07**
